

SELECTION SYSTEMS FOR GENETICALLY  
MODIFIED CELLS

DOCKET NO. 24751-2502

Applicant: Jensen

Filed: April 30, 2001

M A D

+3

1 CACCGGCGAA GGAGGATCGA ATTCCTGCAG CCCGCTATCT GCAGGCCGCG ACCATGGCCG  
GTGGCCGCTT CCTCCTAGCT TAAGGACGTC GGGCGATAGA CGTCCGCGCG TGGTACCGGC

+3  
-D Y L I S G G T S Y V P D D G L T A Q Q L

61 ACTACCTGAT TAGTGGGGGC ACGTCCTACG TGCCAGACGA CCGACTCACA GCACAGCAGC  
TGATGGACTA ATCACCCCGG TGCAGGATGC ACGGTCTGCT GCCTGAGTGT CGTGTCTGTCG

+3  
-L F N C G D G L T Y N D F L I L P G Y I D

121 TCTTCAACTG CGGAGACGGC CTCACCTACA ATGACTTTCT CATTCTCCCT GGTACATCG  
AGAAGTTGAC GCCTCTGCCG GAGTGGATGT TACTGAAAGA GTAAGAGGGA CCCATGTAGC

+3  
-D F T A D Q V D L T S A L T K K I T L K T

181 ACTTCACTGC AGACCAGGTG GACCTGACTT CTGCTCTGAC CAAGAAAATC ACTCTTAAGA  
TGAAGTGACG TCTGGTCCAC CTGGACTGAA GACGAGACTG GTTCTTTTAG TGAGAATTCT

+3  
-T P L V S S P M D T V T E A G M A I A M A

241 CCCCCTGGT TTCCTCTCCC ATGGACACAG TCACAGAGGC TGGGATGGCC ATAGCAATGG  
GGGGTGACCA AAGGAGAGGG TACCTGTGTC AGTGTCTCCG ACCCTACCGG TATCGTTACC

+3  
-A L T G G I G F I H H N C T P E F Q A N E

301 CGCTTACAGG CGGTATTGGC TTCATCCACC ACAACTGTAC ACCTGAATTC CAGGCCAATG  
GCGAATGTCC GCCATAACCG AAGTAGGTGG TGTGACATG TGGACTTAAG GTCCGGTTAC

+3  
-E V R K V K K Y E Q G F I T D P V V L S P

361 AAGTTCGGAA AGTGAAGAAA TATGAACAGG GATTCACTAC AGACCCTGTG GTCCTCAGCC  
TTCAAGCCTT TCACCTCTTT ATACTGTGCC CTAAGTAGTG TCTGGGACAC CAGGAGTCGG

+3  
-P K D R V R D V F E A K A R H G F C G I P

421 CCAAGGATCG CGTGCGGGAT GTTTTGTAGG CCAAGGCCCG GCATGGTTTC TGCGGTATCC  
GGTTCCTAGC GCACGCCCTA CAAAACTCC GGTTCGGGGC CGTACCAAAG ACCCCATAGG

+3  
-P I T D T G R M G S R L V G I I S S R D I

481 CAATCACAGA CACAGGCCGG ATGGGGAGCC GTTGGTGGG CATCATCTCC TCCAGGGACA  
GTTAGTGTCT GTGTCCGGCC TACCCCTCGG CGAACCACCC GTAGTAGAGG AGGTCCCTGT

+3  
-I D F L K E E E H D C F L E E I M T K R E

541 TTGATTTTCT CAAAGAGGAG GAACATGACT GTTCTTTGGA AGAGATAATG ACAAAGAGGG  
AACTAAAAGA GTTTCTCCTC CTGTGACTGA CAAAGAACCT TCTCTATTAC TGTTCCTCCC

+3  
-E D L V V A P A G I T L K E A N E I L Q R

601 AAGACTTGGT GGTAGCCCTT GCAGGCATCA CACTGAAGGA GGCAAATGAA ATTCTGCAGC  
TTCTGAACCA CCATCGGGGA CGTCCGTAGT GTGACTTCCT CCGTTTACTT TAAGACGTCC

+3  
-R S K K G K L P I V N E D D E L V A I I A

661 GCAGCAAGAA GGGAAAGTTG CCCATTGTAA ATGAAGATGA TGAGCTTGTG GCCATCATTG  
CGTCTGTTCTT CCCTTTCAAC GGGTAACATT TACTTCTACT ACTCGAACAC CGGTAGTAAC

+3  
-A R T D L K K N R D Y P L A S K D A K K Q

721 CCCGGACAGA CCTGAAGAAC AATCGGGACT ACCCACTAGC CTCCAAAGAT GCCAAGAAAC  
GGGCCTGTCT GGACTTCTTC TTAGCCCTGA TGGGTGATCG GAGGTTTCTA CGGTTCTTTG

+3  
-Q L L C G A A I G T H E D D K Y R L D L L

781 AGCTGCTGTG TGGGGCAGCC ATTGGCACTC ATGAGGATGA CAAGTATAGG CTGGACTTGC  
TCGACGACAC ACCCGTCTCG TAACCGTGAG TACTCCTACT GTTCATATCC GACCTGAACG

+3  
-L A Q A G V D V V V L D S S Q G N S I F Q

841 TCGCCCAGGC TGGTGTGGAT GTAGTGGTTT TGGACTCTTC CCAGGGAAAT TCCATCTTCC  
AGCGGGTCCG ACCACACCTA CATCACAAA ACCTGAGAAG GGTCCCTTTA AGGTAGAAGG

+3  
-Q I N M I K Y I K D K Y P N L Q V I G G N

901 AGATCAATAT GATCAAGTAC ATCAAAGACA AATACCCTAA TCTCCAAGTC ATTGGAGGCA  
TCTAGTTATA CTAGTTCATG TAGTTTCTGT TTATGGGATT AGAGGTTTCAG TAACCTCCGT

FIG 1A

## SELECTION SYSTEMS FOR GENETICALLY

## MODIFIED CELLS

DOCKET NO. 24751-2502

Applicant: Jensen

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+3 .N V V T A A Q A K N L I D A G V D A L R V  
961 ATGTGGTCAC TGCTGCCCAG GCCAAGAACC TCATTGATGC AGGTGTGGAT GCCCTGCGGG  
TACACCAGTG ACGACGGGTC CCGTCTTGG AGTAACACG TCCACACCTA CGGGACGCCC  
+3 .V G M G S G S I C I I Q E V L A C G R P Q  
1021 TGGGCATGGG AAGTGGCTCC ATCTGCATTA TCCAGGAAGT GCTGGCCTGT GGGCGGCCCC  
ACCCGTACCC TTCACCGAGG TAGACGTAAT AGGTCTTCA CGACCGGACA CCGCGCGGGG  
+3 .Q A T A V Y K V Y E Y A R R F G V P V I A  
1081 AAGCAACAGC AGTGTACAAG GTGTATGAGT ATGCACGGCG CTTTGGTGT TCCGGTCATTG  
TTCGTTGTTCG TCACATGTTT CACATACTCA TACGTGCCGC GAAACCACAA GGCCAGTAAC  
+3 .A D G G I Q N V G H I A K A L A L G A S T  
1141 CTGATGGAGG AATCCAAAT GTGGGTCATA TTGCGAAAGC CTTGGCCCTT GGGGCTCCA  
GACTACCTCC TTAGGTTTTA CACCCAGTAT AACGCTTTCG GAACCGGGAA CCGCGGAGGT  
+3 .T V M M G S L L A A T T E A P G E Y F F S  
1201 CAGTCATGAT GGGCTCTCTC CTGGCTGCCA CCACTGAGGC CCCTGGTGAA TACTTCTTTT  
GTCAGTACTA CCCGAGAGAG GACCGACGGT GGTGACTCCG GGGACCACTT ATGAAGAAAA  
+3 .S D G I R L K K Y R G M G S L D A M D K H  
1261 CCGATGGGAT CCGGCTAAAG AAATATCGCG GTATGGGTTT TCTCGATGCC ATGGACAAGC  
GGCTACCCTA GGCCGATTTT TTTATAGCGC CATACCCAAG AGAGCTACCG TACCTGTTTCG  
+3 .H L S S Q N R Y F S E A D K I K V A Q G V  
1321 ACCTCAGCAG CCAGAACAGA TATTTTCAGTG AAGCTGACAA AATCAAAGTG GCCCAGGGAG  
TGGAGTCGTC GGTCTTGTCT ATAAAGTCAC TTCGACTGTT TTAGTTTCAC CCGGTCCCTC  
+3 .V S G A V Q D K G S I H K F V P Y L I A G  
1381 TGTCTGGTGC TGTGCAGGAC AAAGGGTCAA TCCACAAATT TGTCCCTTAC CTGATTGCTG  
ACAGACCACG ACACGTCCTG TTTCCCAGTT AGGTGTTTAA ACAGGGAATG GACTAACGAC  
+3 .G I Q H S C Q D I G A K S L T Q V R A M M  
1441 GCATCCAACA CTCATGCCAG GACATTGGTG CCAAGAGCTT GACCCAAGTC CGAGCCATGA  
CGTAGGTTGT GAGTACGGTC CTGTAACCAC GGTCTCTGAA CTGGGTTTAC GCTCGGTAAT  
+3 .M Y S G E L K F E K R T S S A Q V E G G V  
1501 TGTACTCTGG GGAGCTTAAG TTTGAGAAGA GAACGTCCTC AGCCCAGGTG GAAGGTGGCG  
ACATGAGACC COTCGAATTC AAACCTCTCT CTGCGAGGAG TCGGCTCCAC CTTCCACCGC  
+3 .V H S L H S Y E K R L F  
1561 TCCATAGCCT CCATTCTGAT GAGAAGCGGC TTTTCTGATC TAGCTCGACA TGATAAGATA  
AGGTATCGGA GGTAAGCATA CTCTTCGCCG AAAAGACTAG ATCGAGCTGT ACTATTCTAT  
1621 CATTGATGAG TTTGGACAAA CCACAAC TAG AATGCAGTGA AAAAAATGCT TTATTGTGA  
GTAACACTC AAACCTGTTT GGTGTTGATC TTACGTCAC TTTTTCACGA AATAAACA  
1681 AATTTGTGAT GCTATTGCTT TATTTGTGAA ATTTGTGATG CTATTGCTTT ATTTGTAACC  
TTAAACACTA CGATAACGAA ATAAACACTT TAAACACTAC GATAACGAAA TAAACATTGG  
1741 ATTATAAGCT GCAATAAACA AGTTAACAAC AACAAATGCA TTCATTTTAT GTTTCAGGTT  
TAATATTTCGA CGTTATTTGT TCAATTGTTG TTGTTAACGT AAGTAAAATA CAAAGTCCAA  
1801 CAGGCGGAGG TGTGGGAGGT TTTTAAAGC AAGTAAAACC TCTACAAATG TGGTAGATCA  
GTCCCCCTCC ACACCCTCCA AAAAATTTTCG TTCATTTTGG AGATGTTTAC ACCATCTAGT  
1861 TTTAAATGTT AGCGAAGAAC ATGTGAGCAA AAGGCCAGCA AAAGGCCAGG AACCCTAAAA  
AAATTTACAA TCGCTTCTTG TACACTCGTT TTCCGGTCGT TTTCCGGTCC TTGGCATTTT  
1921 AGGCGCGGTT GCTGGCGTTT TTCCATAGGC TCCGCCCCC TGACGAGCAT CACAAAAATC  
TCCGCGCGAA CGACCGCAAA AAGGTATCCG AGGCGGGGGG ACTGCTCGTA GTGTTTTTAG  
1981 GACGCTCAAG TCAGAGGTGG CGAAACCCGA CAGGACTATA AAGATACCAG GCGTTTTCCC  
CTGCGAGTTC AGTCTCCACC GCTTTGGGCT GTCCTGATAT TTCTATGGTC CGCAAAGGGG

FIG 1B

SELECTION SYSTEMS FOR GENETICALLY  
MODIFIED CELLS

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HELLER EHRMAN WHITE & MCANULTY LLP

2041	CTGGAAGCTC	CCTCGTGCGC	TCTCCTGTTT	CGACCCCTGCC	GCTTACCGGA	TACCTGTCCG
	GACCTTCGAG	GGAGCACGCG	AGAGGACAA	GCTGGGACCG	CGAATGGCCT	ATGGACAGGC
2101	CCTTTCTCCC	TTCCGGGAAGC	GTGGCGCTTT	CTCAATGCTC	ACGCTGTAGG	TATCTCAGTT
	GGAAAGAGGG	AAGCCCTTCG	CACCGCGAAA	GAGTTACGAG	TCCGACATCC	ATAGAGTCAA
2161	CGGTGTAGGT	CGTTCGCTCC	AAGCTGGGCT	GTGTGCACGA	ACCCCGCGTT	CAGCCCCGACC
	GCCACATCCA	GCAAGCGAGG	TTCCGACCCGA	CACACGTGCT	TGGGGGGCAA	GTCCGGGCTGG
2221	GCTGCGCCTT	ATCCCGTAAC	TATCGTCTTG	AGTCCAACCC	GGTAAGACAC	GACTTATCGC
	CGACGCGGAA	TAGGCCATTG	ATAGCAGAAC	TCAGGTGGG	CCATTCTGTG	CTGAATAGCG
2281	CACTGGCAGC	AGCCACTGGT	AACAGGATTA	GCAGAGCGAG	GTATGTAGGC	GGTGCTACAG
	GTGACCGTCG	TCGGTGACCA	TTGTCCCTAAT	CGTCTCGCTC	CATACATCCG	CCACGATGTC
2341	AGTTCTTGAA	GTGGTGGCCT	AACACTAGGCT	ACACTAGAAG	AACAGTATTT	GGTATCTGCG
	TCAAGAATT	CACCACCGGA	TTGATGCCGA	TGTGATCTTC	TTGTCATAAA	CCATAGACGC
2401	CTCTGCTGAA	GCCAGTTACC	TTCCGAAAAA	GAGTTGGTAG	CTCTTGATCC	GGCAAACAAA
	GAGACGACTT	CGGTCAATGG	AAGCCTTTTT	CTCAACCATC	GAGAACTAGG	CCGTTTGT
2461	CCACCGCTGG	TAGCGGTGGT	TTTTTTGT	GCAAGCAGCA	GATTACGCGC	AGAAAAAAG
	GGTGGCGACC	ATCGCCACCA	AAAAAACAAA	CGTTCGTGCT	CTAATGCGCG	TCTTTTTTTC
2521	GATCTCAAGA	AGATCCTTTG	ATCTTTTCTA	CGGGGTCTGA	CGCTCAGTGG	AACGAAAACT
	CTAGAGTTCT	TCTAGGAAAC	TAGAAAAGAT	GCCCCAGACT	GCGAGTCACC	TTGCTTTTGA
2581	CACGTTAAGG	GATTTTGGTC	ATGGCTAGTT	AATTAAGCTG	CAATAAACAA	TCATTATTTT
	GTGCAATTCC	CTAAAACCAG	TACCGATCAA	TTAATTGAC	GTTATTTGTT	AGTAATAAAA
2641	CATTGGATCT	GTGTGTTGGT	TTTTTGTG	GGCTTGGGGG	AGGGGGAGGC	CAGAATGACT
	GTAACCTAGA	CACACAACCA	AAAAACACAC	CCGAACCCCC	TCCCCCTCCG	GTCTTACTGA
2701	CCAAGAGCTA	CAGGAAGGCA	GGTCAGAGAC	CCCACTGGAC	AAACAGTGGC	TGGACTCTGC
	GGTTCTCGAT	GTCTTCCGT	CCAGTCTCTG	GGGTGACCTG	TTGTCACCG	ACCTGAGACG
2761	ACCATAACAC	ACAATCAACA	GGGGAGTGAG	CTGGATCGAG	CTAGACTCCG	TTACATAACT
	TGGTATTGTG	TGTTAGTTGT	CCCCTCACTC	GACCTAGCTC	GATCTCAGGC	AATGTATTGA
2821	TACGGTAAAT	GGCCCCGCTG	GCTGACCGCC	CAACGACCCC	CGCCCCATTGA	CGTCAATAAT
	ATGCCATTTA	CCGGGCGGAC	CGACTGGCGG	GTGCTGGGG	GCGGGTAACT	GCAGTTATTA
2881	GACGTATGTT	CCCATAGTAA	CGCCAATAGG	GACTTTCCAT	TGACGTCAAT	GGGTGGAGTA
	CTGCATACAA	GGGTATCATT	GCGGTTATCC	CTGAAAGGTA	ACTGCAGTTA	CCCACCTCAT
2941	TTTACGGTAA	ACTGCCCACT	TGGCAGTACA	TCAAGTGTAT	CATATGCCAA	GTACGCCCCC
	AAATGCCATT	TGACGGGTGA	ACCGTCATGT	AGTTCACATA	GTATACGGTT	CATGCGGGGG
3001	TATTGACGTC	AATGACGGTA	AATGGCCCCG	CTGGCATTAT	GCCCAGTACA	TGACCTTATG
	ATAACTGCAG	TTACTGCCAT	TTACCGGGCG	GACCGTAATA	CGGGTCATGT	ACTGGAATAC
3061	GGACTTTTCT	ACTTGGCAGT	ACATCTACGT	ATTAGTCATC	GCTATTACCA	TGGTGATGCG
	CCTGAAAGGA	TGAACCGTCA	TGTAGATGCA	TAATCAGTAG	CGATAATGGT	ACCACTACGC
3121	GTTTTTGGCAG	TACATCAATG	GGCGTGGATA	GCGGTTTGAC	TCACGGGGAT	TTCCAAGTCT
	CAAAACCGTC	ATGTAGTTAC	CCGACCTAT	CGCCAACTG	AGTGCCCTA	AAGGTTTACA
3181	CCACCCCAT	GACGTCAATG	GGAGTTTGT	TTGGCACCAA	AATCAACGGG	ACTTTCCAAA
	GGTGGGGTAA	CTGCAGTTAC	CCTCAAACAA	AACCGTGGTT	TTAGTTGCCC	TGAAAGGTTT
3241	ATGTCGTAAC	AACTCCGCCC	CATTGACGCA	AATGGCGCGT	AGGCGTGTAC	GGTGGGAGGT
	TACAGCATTG	TTGAGGCGGG	GTAACCTGCGT	TTACCGGCCA	TCCGCACATG	CCACCCTCCA
3301	CTATATAAGC	AGAGCTCGTT	TAGTGAACCG	TCAGATCGCC	TGGAGACGCC	ATCCACGCTG
	GATATATTCT	TCTCGAGCAA	ATCACTTGGC	AGTCTAGCGG	ACCTCTGCGG	TAGGTGCGAC
3361	TTTTGACCTC	CATAGAAGAC	ACCGGACCG	ATCCAGCCTC	CGCGGCCGGG	AACGGTGCAT
	AAAACCTGGAG	GTATCTTCTG	TGGCCCTGGC	TAGGTGCGAG	GCGCCGGGCC	TTGCCACGTA

FIG 1C

## SELECTION SYSTEMS FOR GENETICALLY

## MODIFIED CELLS

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3421 TGAACGCGG ATTCCTCCGTG CCAAGAGTGA CGTAAGTACC GCCTATAGAG TCTATAGGCC  
ACCTTGCGCC TAAGGGGCAC GGTTCCTCACT GCATTCATGG CGGATATCTC AGATATCCGG

3481 CACCCCTTG GCTTCTTATG CATGCTATAC TGTTTTGGC TTGGGGTCTA TACACCCCGG  
GTGGGGGAAC CGAAGAATAC GTACGATATG AAAAAACCG AACCAGAT ATGTGGGGGC

3541 CTTCTCATG TTATAGGTGA TGGTATAGCT TAGCCTATAG GTGTGGGTTA TTGACCATTA  
GAAGGAGTAC AATATCCACT ACCATATCGA ATCGGATATC CACACCCAAT AACTGGTAAT

3601 TTGACCACTC CCCTATTGGT GACGATACTT TCCATTACTA ATCCATAACA TGGCTCTTTG  
AACTGGTGAG GGGATAACCA CTGCTATGAA AGGTAATGAT TAGGTATTGT ACCGAGAAAC

3661 CCACAACCTC CTTTATTGGC TATATGCCAA TACACTGTCC TTCAGAGACT GACACGGACT  
GGTGTGAGA GAAATAACCG ATATACGGTT ATGTGACAGG AAGTCTCTGA CTGTCCCTGA

3721 CTGTATTTTT ACAGGATGGG GTCTCATTTA TTATTTACAA ATTCACATAT ACAACACCAC  
GACATAAAAA TGTCCTACCC CAGAGTAAAT AATAAATGTT TAAGTGATA TGTGTGGTG

3781 CGTCCCGAGT GCGCGAGTT TTTATTAAAC ATAACGTGGG ATCTCCACGC GAATCTCGGG  
GCAGGGGTCA CCGGCGTCAA AAATAATTTG TATTGCACCC TAGAGGTGGC CTTAGAGCCC

3841 TACGTGTTCC GGACATGGGC TCTTCTCCGG TAGCGCGGA GCTTCTACAT CCGAGCCCTG  
ATGCACAAGG CCTGTACCCG AGAAGAGGCC ATCGCCGCT CGAAGATGTA GGCTCGGGAC

3901 CTCCCATGCC TCCAGCGACT CATGGTCGCT CGGCAGCTCC TTGCTCCTAA CAGTGGAGGC  
GAGGGTACGG AGGTCCCTGA GTACCAGCGA GCGTCGAGG AACGAGGATT CTCACCTCCG

3961 CAGACTTAGG CACAGCACGA TGCCACCAC CACCAGTGTG CCGCACAGG CCGTGGCGGT  
GTCTGAATCC GTGTGCTGCT ACGGGTGGTG GTGGTCACAC GCGGTGTTC GGCACGCCA

4021 AGGGTATGTG TCTGAAAATG AGCTCGGGGA GCGGGCTTGC ACCGCTGACG CATTTGGAAG  
TCCCATACAC AGACTTTTAC TCGAGCCCT CGCCCGAACG TGGCGACTGC GTAAACCTTC

4081 ACTTAAGGCA GCGGCAGAAG AAGATGCAGG CAGCTGAGTT GTTGTGTTCT GATAAGAGTC  
TGAATTCGGT CCGCGTCTTC TTCTACGTCC GTCGACTCAA CAACACAAGA CTATTCTCAG

4141 AGAGGTAACCT CCGGTGCGG TGCTGTTAAC GGTGGAGGGC AGTGTAGTCT GAGCAGTACT  
TCTCCATTGA GGGCAACGCC ACGACAATTG CCACCTCCCG TCACATCAGA CTCCTCATGA

4201 CGTTGCTGCC GCGCGCGCCA CCAGACATAA TAGCTGACAG ACTAACAGAC TGTTCCTTTC  
GCAACGACGG CCGCGCGCGT GGTCTGTATT MCS

4261 CATGGGTCTT TTCTGCAGTC ACCCGGGGGA TCCTTCGAAC GTAGCTCTAG ATTGAGTCGA  
GTACCCAGAA AAGACGTCAG TGGGCCCCCT AGGAAGCTTG CATCGAGATC TAACTCAGCT

4321 CGTTACTGGC CGAAGCCGCT TGAATAAAG CCGGTGTGCG TTTGTCTATA TGTTATTTTC  
GCAATGACCG GCTTCGGCGA ACCTTATTCC GGCCACACGC AAACAGATAT ACAATAAAG

4381 CACCATATTG CCGTCTTTTG GCAATGTGAG GGCCCGGAAA CCTGGCCCTG TCTTCTTGAC  
GTGGTATAAC GGCAGAAAAC CGTTACACTC CCGGGCCTTT GGACCGGGAC AGAAGAACTG

4441 GAGCATTCTT AGGGGTCTTT CCCCTCTCGC CAAAGGAATG CAAGGTCTGT TGAATGTCGT  
CTCGTAAGGA TCCCCAGAAA GGGGAGAGCG GTTTCCTTAC GTTCCAGACA ACTTACAGCA

4501 GAAGGAAGCA GTTCTCTGG AAGCTTCTTG AAGACAAACA ACGTCTGTAG CGACCCCTTG  
CTTCTTCTCGT CAAGGAGACC TTCGAAGAAC TTCTGTTTGT TGCAGACATC GCTGGGAAAC

4561 CAGGCAGCGG AACCCCCAC CTGGCGACAG GTGCCTCTGC GGCCAAAAGC CACGTGTATA  
GTCCGTCGCC TTGGGGGGTG GACCGCTGTC CACCGAGACG CCGGTTTTTC GTGCACATAT

4621 AGATACACCT GCAAAGGCGG CACAACCCCA GTGCCACGTT GTGAGTTGGA TAGTTGTGGA  
TCTATGTGGA CGTTTCCGCC GTGTTGGGGT CACGGTGCAA CACTCAACCT ATCAACACCT

4681 AAGAGTCAAA TGGCTCTCCT CAAGCGTATT CAACAAGGGG CTGAAGGATG CCCAGAAGGT  
TTCTCAGTTT ACCGAGAGGA GTTCGCATAA GTTGTTCCTT GACTTCCTAC GGGTCTTCCA

4741 ACCCATTTGT ATGGGATCTG ATCTGGGGCC TCGGTGCACA TGCTTTACAT GTGTTTAGTC  
TGGGGTAACA TACCCTAGAC TAGACCCCGG AGCCACGTGT ACGAAATGTA CACAAATCAG

FIG 1D

4801 GAGGTTAAAA AAACGTCTAG GCCCCCGAA CCACGGGGAC GTGGTTTTCC TTTGAAAAAC  
CTCCAATTTT TTTGCAGATC CGGGGGGCTT GGTGCCCCTG CACCAAAAGG AAACCTTTTTG  
4861 ACGATAATAC CATGGGTAAG TGATATCTAC TAGTTGTGAC CGGCGCCTAG TGTTGACAAT  
TGCTATTATG GTACCCATTG ACTATAGATG ATCAACACTG GCCGCGGATC ACAACTGTTA  
4921 TAATCATCGG CATACTATAT CGGCATAGTA TAATACGACT CACTATAGGA GGGCCACCAT  
ATTAGTAGCC GTATCATATA GCCGTATCAT ATTATGCTGA GTGATATCCT CCCGGTGGTA  
4981 GTCGACTACT AACCTTCTTC TCTTTCCTAC AGCTGAGATC ACCGGTAGGA GGGCCATCAT  
CAGCTGATGA TTGGAAGAAG AGAAAGGATG TCGACTCTAG TGGCCATCCT CCCGGTAGTA  
5041 GAAAAAGCCT GAACCTACCG CGACGTCTGT CGCGAAGTTT CTGATCGAAA AGTTCGACAG  
CTTTTTTCGGA CTTGAGTGCG GCTGCAGACA GCGCTTCAAA GACTAGCTTT TCAAGCTGTC  
5101 CGTCTCCGAC CTGATGCAGC TCTCGGAGGG CGAAGAATCT CGTGCTTTCA GCTTCGATGT  
GCAGAGGCTG GACTACGTCG AGAGCCTCCC GCTTCTTAGA GCACGAAAGT CGAAGCTACA  
5161 AGGAGGGCGT GGATATGTCC TCGGGGTAAA TAGCTGCGCC GATGGTTTCT ACAAAGATCG  
TCCTCCCGCA CCTATACAGG ACGCCCATTT ATCGACGCGG CTACCAAAGA TGTTTCTAGC  
5221 TTATGTTTTAT CGGCACCTTG CATCGGCCGC GCTCCCGATT CCGGAAGTGC TTGACATTGG  
AATACAAATA GCCGTGAAAC GTAGCCGGCG CGAGGGCTAA GGCCTTCACG AACTGTAACC  
5281 GGAATTCAGC GAGAGCCTGA CCTATTGCAT CTCCCGCCGT GCACAGGGTG TCACGTTGCA  
CCTTAAGTCG CTCTCGGACT GGATAACGTA GAGGGCGGCA CGTGTCACAC AGTGCAACGT  
5341 AGACCTGCCT GAAACCGAAC TGCCCGCTGT TCTGCAACCC GTGCGGAGC TCATGGATGC  
TCTGGACGGA CTTTGGCTTG ACGGGCGACA AGACGTTGGG CAGCGCCTCG AGTACCTACG  
5401 GATCGCTGCG GCCGATCTTA GCCAGACGAG CGGGTTCGGC CCATTCGGAC CGCAAGGAAT  
CTAGCGACGC CGGCTAGAAT CGGTCTGCTC GCGCAAGCCG GGTAAACCTG CCGTTCCTTA  
5461 CGGTCAATAC ACTACATGGC GTGATTTTCAT ATGCGCGATT GCTGATCCCC ATGTGTATCA  
GCCAGTTATG TGATGTACCG CACTAAAGTA TACGCGCTAA CGACTAGGGG TACACATAGT  
5521 CTGGCAAACGT GTGATGGACG ACACCGTCAG TGCGTCCGTC GCGCAGGCTC TCGATGAGCT  
GACCGTTTGA CACTACCTGC TGTGGCAGTC ACGCAGGCAG CGCGTCCGAG AGCTACTCGA  
5581 GATGCTTTTG GCCGAGGACT GCGCCGAAGT CCGGCACCTC GTGCACGCGG ATTTGCGCTC  
CTACGAAACC CGGCTCCTGA CCGGGCTTCA GGCCGTGGAG CACGTGCGCC TAAAGCCGAG  
5641 CAACAATGTC CTGACGGACA ATGGCCGCAT AACAGCGGTC ATTGACTGGA GCGAGGCGAT  
GTTGTTACAG GACTGCCTGT TACCGGCGTA TTGTGCGCAG TAACTGACCT CGCTCCGCTA  
5701 GTTCGGGGAT TCCCAATACG AGGTGCGCAA CATCTTCTTC TGGAGGCCGT GGTGCGCTG  
CAAGCCCCTA ACGGTATATG TCCAGCGGTT GTAGAAGAAG ACCTCCGGCA CCAACCGAAC  
5761 TATGGAGCAG CAGACGCGCT ACTTCGAGCG GAGGCATCCG GAGCTTGCAG GATCGCCGCG  
ATACCTCGTC GTCTGCGCGA TGAAGCTCGC CTCCGTAGGC CTCGAACGTC CTAGCGGCGC  
5821 GCTCCGGGCG TATATGCTCC GCATTGGTCT TGACCAACTC TATCAGAGCT TGGTTGACGG  
CGAGGCCCGC ATATACGAGG CGTAACCAGA ACTGGTTGAG ATAGTCTCGA ACCAACTGCC  
5881 CAATTTTCGAT GATGCAGCTT GGGCGCAGGG TCGATGCGAC GCAATCGTCC GATCCGGAGC  
GTTAAAGCTA CTACGTCGAA CCGCGCTCCC AGCTACGCTG CCAATAGCAGG CTAGGCCTCG  
5941 CCGGACTGTC GGGCGTACAC AAATCGCCCG CAGAAGCGCG GCCGTCTGGA CCGATGGCTG  
GCCCTGACAG CCGCATGCTG TTTAGCGGGC GTCTTCGCGC CGGCAGACCT GGCTACCGAC  
6001 TGTAAGAATC GCGTCTGCGT TCGACCAGGC TGCGCGTTCT CCGCGCCATA GCAACCGAGC  
ACATCTTCAG CGCAGACGCA AGCTGGTCCG ACGCGCAAGA GCGCCGGTAT CGTTGGCTGC  
6061 TACGGCGTTG CCGCCTCGCC GGCAGCAAGA AGCCACGGAA GTCCGCCCCG AGCAGAAAAT  
ATGCCGCAAC GCGGGAGCGG CCGTCGTTCT TCGGTGCCTT CAGGCGGGCC TCGTCTTTTA  
6121 GCCCACGCTA CTGCGGTTT ATATAGACGG TCCCCACGGG ATGGGGAAAA CCACCACCAC  
CGGGTGCGAT GACGCCCAA TATATCTGCC AGGGGTGCCC TACCCCTTTT GGTGGTGGTG

FIG 1E

**SELECTION SYSTEMS FOR GENETICALLY  
MODIFIED CELLS**

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6181  GCAACTGCTG GTGGCCCTGG GTTCGCGCGA CGATATCGTC TACGTACCCG AGCCGATGAC
      CGTTGACGAC CACCGGGACC CAAGCGCGCT GCTATAGCAG ATGCATGGGC TCGGCTACTG
6241  TTA CTGGGG GTGCTGGGG CTTCCGAGAC AATCGCGAAC ATCTACACCA CACAACACCG
      AATGACCGCC CACGACCCCC GAAGGCTCTG TTAGCGCTTG TAGATGTGGT GTGTTGTGGC
6301  CCTCGACCAG GGTGAGATAT CGGCCGGGGA CGCGGCGGTG GTAATGACAA GCGCCAGAT
      GGAGCTGGTC CCACTCTATA GCCGGCCCCCT GCGCGGCCAC CATTACTGTT CGCGGGTCTA
6361  AACAAATGGG ATGCCTTATG CCGTGACCGA CGCCGTTCTG GCTCCTCATA TCGGGGGGGA
      TTGTTACCCG TACGGAATAC GGCACCTGGT GCGGCAAGAC CGAGGAGTAT AGCCCCCCT
6421  GGCTGGGAGC TCACATGCCC CGCCCCCGGC CCTCACCCCTC ATCTTCGACC GCCATCCCAT
      CCGACCCCTG AGTGTACGGG GCGGGGGCCG GGAGTGGGAG TAGAAGCTGG CGGTAGGGTA
6481  CGCCGCCCTC CTGTGCTACC CGGCCGCGCG GTACCTTATG GGCAGCATGA CCCCCAGGC
      GCGGCGGGAG GACACGATGG GCCGGCGCGC CATGGAATAC CCGTCGTACT GGGGGGTCCG
6541  CGTGCTGGCG TTCGTGGCCC TCATCCCGCC GACCTTGCCC GGCACCAACA TCGTGCTTGG
      GCACGACCGC AAGCACCGGG AGTAGGGCGG CTGGAACGGG CCGTGGTTGT AGCACGAACC
6601  GGCCCTTCCG GAGGACAGAC ACATCGACCG CCTGGCCAAA CGCCAGCGCC CCGCGGAGCG
      CCGGGAAGGC CTCCTGTCTG TGTAGCTGGC GGACCGGTTT GCGGTGCGCG GGCCGCTCGC
6661  GCTGGACCTG GCTATGCTGG CTGCGATTCTG CCGCGTTTAC GGGCTACTTG CCAATACGGT
      CGACCTGGAC CGATACGACC GACGCTAAGC GCGGCAAATG CCGATGAAC GGTATGCCA
6721  GCGGTATCTG CAGTGCGGCG GGTGCTGGCG GGAGGACTGG GGACAGCTTT CGGGGACGGC
      CGCCATAGAC GTCACGCGC CCAGCACCGC CCTCCTGACC CCTGTCGAAA GCCCCTGCCG
6781  CGTGCCGCCC CAGGGTGCCG AGCCCCAGAG CAACGCGGGC CCACGACCCC ATATCGGGGA
      GCACGGCGGG GTCCCACGGC TCGGGGTCTC GTTGCGCCCG GGTGCTGGGG TATAGCCCCT
6841  CACGTTATTT ACCCTGTTTC GGGCCCCCGA GTTGCTGGCC CCCAACGGCG ACCTGTATAA
      GTGCAATAAA TGGGACAAAG CCCGGGGGCT CAACGACCGG GGGTTGCCGC TGGACATATT
6901  CGTGTTTGCC TGGGCCTTGG ACCTCTTGGC CAAACGCCCTC CGTTCCATGC ACGTCTTTAT
      GCACAAACGG ACCCGGAACC TGCAGAACCG GTTTGCGGAG GCAAGGTACG TGCAGAAATA
6961  CCTGGATTAC GACCAATCGC CCGCCGGCTG CCGGGACGCC CTGCTGCAAC TTACCTCCGG
      GGACCTAATG CTGGTTAGCG GCGGCGCGAC GGCCCTGCGG GACGACGTTG AATGGAGGCC
7021  GATGGTCCAG ACCCAGTCA CCACCCCGG CTCCATACCG ACGATATGCG ACCTGGCGCG
      CTACCAGGTC TGGGTGCACT GGTGGGGGCC GAGGTATGGC TGCTATACGC TGGACCGCGC
7081  CACGTTTGCC CGGAGATGG GGGAGGCTAA CTGAGTCGAG AATTCGCTAG AGGGCCCTAT
      GTGCAAACGG GCCCTCTACC CCTCCGATT GACTCAGCTC TTAAGCGATC TCCCGGATA
7141  TCTATAGTGT CACCTAAATG CTAGAGCTCG CTGATCAGCC TCGACTGTGC CTTCTAGTTG
      AGATATCACA GTGGATTTAC GATCTCGAGC GACTAGTCGG AGCTGACACG GAAGATCAAC
7201  CCAGCCATCT GTTGTTTGCC CCTCCCCCGT GCCTTCCTTG ACCCTGGAAG GTGCCACTCC
      GGTGCGTAGA CAACAAACGG GGAGGGGGCA CGGAAGGAAC TGGGACCTTC CACGGTGAGG
7261  CACTGTCCTT TCCTAATAAA ATGAGGAAAT TGCATCGCAT TGTCTGAGTA GGTGTCATTC
      GTGACAGGAA AGGATTATTT TACTCTTTTA ACGTAGCGTA ACAGACTCAT CCACAGTAAG
7321  TATTCTGGGG GGTGGGGTGG GGCAGGACAG CAAGGGGGAG GATTGGGAAG ACAATAGCAG
      ATAAGACCCC CCACCCACCC CCGTCTGTGC GTTCCCCCTC CTAACCCCTC TGTATCGTC
7381  GCATGCGCAG GGGCCAATTG CTCGAGCGGC CGCAATAAAA TATCTTTATT TTCATTACAT
      CGTACGCGTC CCGGGTTAAC GAGCTCGCCG GCGTTATTTT ATAGAAATAA AAGTAATGTA
7441  CTGTGTGTTG GTTTTTTGTG TGAATCGTAA CTAACATACG CTCTCCATCA AAACAAAACG
      GACACACAAC CAAAAAACAC ACTTAGCATT GATTGTATGC GAGAGGTAGT TTTGTTTTGC
7501  AAACAAAACA AACTAGCAAA ATAGGCTGTC CCCAGTGCAA GTGCAGGTGC CAGAACATTT
      TTTGTTTTGT TTGATCGTTT TATCCGACAG GGGTACGTT CACGTCCACG GTCTTGTA
  
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FIG 1F

SELECTION SYSTEMS FOR GENETICALLY  
MODIFIED CELLS

DOCKET NO. 24751-2502

Applicant: Jensen

Filed: April 30, 2001

7561 CTCTATCGAA GGATCTGCGA TCGCTCCGGT GCCCGTCAGT GGGCAGAGCG CACATCGCCC  
GAGATAGCTT CCTAGACGCT AGCGAGGCCA CGGGCAGTCA CCCGTCTCGC GTGTAGCGGG  
7621 ACAGTCCCCG AGAAGTTGGG GGGAGGGGTC GGCAATTGAA CCGGTGCCTA GAGAAGGTGG  
TGTCAGGGGC TCTTCAACCC CCTCCCCAG CCGTTAACTT GGCCACGGAT CTCTCCACC  
7681 CGCGGGGTAA ACTGGGAAAG TGATGTCGTG TACTGGCTCC GCCTTTTTC CGAGGGTGGG  
GCGCCCCATT TGACCCTTTC ACTACAGCAC ATGACCGAGG CGGAAAAAGG GCTCCCACCC  
7741 GGAGAACCGT ATATAAGTGC AGTAGTCGCC GTGAACGTTT TTTTTCGCAA CGGGTTTGCC  
CCTCTTGCCA TATATTACG TCATCAGCGG CACTTGCAAG AAAAAGCGTT GCCCAAACGG  
7801 GCCAGAACAC AGCTGAAGCT TCGAGGGGCT CGCATCTCTC CTTACGCGC CCGCCGCCCT  
CGGTCTTGTG TCGACTTCGA AGCTCCCCGA GCGTAGAGAG GAAGTGCGCG GCGGCGGGGA  
7861 ACCTGAGGCC GCCATCCACG CCGGTTGAGT CGCGTTCTGC CGCTCCCGC CTGTGGTGCC  
TGGACTCCGG CCGTAGGTGC GGCCAACTCA GCGCAAGACG GCGGAGGGCG GACACCACGG  
7921 TCCTGAACTG CGTCCGCCGT CTAGGTAAGT TTAAAGCTCA GGTGAGACC GGGCCTTTGT  
AGGACTTGAC GCAGGCGGCA GATCCATTCA AATTTGAGT CCAGCTCTGG CCCGAAACA  
7981 CCGGCGCTCC CTTGGAGCCT ACCTAGACTC AGCCGGCTCT CCACGCTTTG CCTGACCCTG  
GGCCGCGAGG GAACCTCGGA TGGATCTGAG TCGGCCGAGA GGTGCGAAAC GGACTGGGAC  
8041 CTTGCTCAAC TCTACGTCTT TGTTTCGTTT TCTGTTCTGC GCCGTTACAG ATCCAAGCTG  
GAACGAGTTG AGATGCAGAA ACAAAGCAAA AGACAAGACG CGGCAATGTC TAGGTTGAC  
8101 TGACCGGCGC CTACGTAAGT GATATCTACT AGATTTATCA AAAAGAGTGT TGACTTGTGA  
ACTGGCCGCG GATGCATTCA CTATAGATGA TCTAAATAGT TTTTCTCACA ACTGAACACT  
8161 GCGCTCACAA TTGATACTTA GATTCATCGA GAGGGACAG TCGACTACTA ACCTTCTTCT  
CGCGAGTGTT AACTATGAAT CTAAGTAGCT CTCCCTGTGC AGCTGATGAT TGGAGAAGA  
8221 CTTTCCTACA GCTGAGAT  
GAAAGGATGT CGACTCTA